

REMARKS

Claims 1-21 are all the claims pending in the application.

Claims 5-9, 14, 15, 20 and 21 are objected to under 37 C.F.R. § 1.75(c) as being in improper form because a multiple dependent claim cannot be dependent from another multiple dependent claim(s); claims 1-4, 10-13 and 16-19 are rejected under 35 U.S.C. § 102(e) as anticipated by Kolesnik et al. (U.S. Patent No. 6,249,614); and claims 4, 13 and 19 are rejected under 35 U.S.C. § 103(a) as obvious over a combination of Kolesnik et al. in view of Nafarich (U.S. Patent No. 6,252,994). Reconsideration and removal of these rejections are respectfully requested on the basis of the present amendment to the claims and the following remarks.

I. Formal Matters

The Examiner has not acknowledged Applicant's claim for foreign priority and has not acknowledged receipt of the priority documents that were filed on July 19, 1999. Applicant contacted the Examiner by telephone to inquire as to which documents were not received. The Examiner believed that all of the documents had been received and that it was merely an oversight on his part. Applicant respectfully requests that the Examiner formally acknowledge Applicant's claim to foreign priority.

The Draftsperson has objected to Figure 8 for having an improper top margin. Applicant submits herewith a new corrected Figure 8 having the proper top margin. Accordingly, Applicant respectfully requests that the objection to Figure 8 be reconsidered and withdrawn.

Finally, the IDS form 1449 was returned with the pending office action. However, the references listed therein were not initialed by the Examiner. Applicant contacted the Examiner by telephone to determine why the references were not initialed. The Examiner stated that it was merely an oversight on his part and that the references were in fact considered. Accordingly, Applicant respectfully requests the Examiner to initial all the references in the 1449 form.

II. Claim Objections

Claims 5-9, 14, 15, 20 and 21 stand objected to under 37 C.F.R. § 1.75(c) as being in improper form because a multiple dependent claim cannot be dependent from another multiple dependent claim. By and through this amendment, Applicant has amended these claims to remove their multiple dependency.

III. Claim Rejections

Claims 1-4, 10-13 and 16-19 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Kolesnik (U.S. Patent No. 6,249,614). Additionally, Claims 4, 13 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kolesnik and Nafarich (U.S. Patent No. 6,252,994).

First, Applicant submits that the rejection of claims 4, 13 and 19 under 35 U.S.C. § 102(e) was an oversight by the Examiner since the Examiner explains on page 5 of the pending office action that the Nafarich reference is needed to cure the deficient teachings of Kolesnik with respect to the limitations in these claims. Therefore, at best, claims 4, 13 and 19 should only be rejected under 35 U.S.C. § 103(a).

Kolesnik discloses a video compression method/apparatus for compressing video data using dynamic quantization and encoding. Referring to Figure 1 of Kolesnik, video data is input into a decomposition unit 105. The decomposition unit 105 decomposes the image represented by the input video data into its different constituent frequency components using wavelets to decompose the input video data into different frequency subbands. Each of these subbands is represented by a matrix of wavelet coefficients. The decomposition unit 105 provides these coefficient matrices to a quantization unit 110. The quantization unit 110 includes a quantization selection unit 115 that dynamically selects the quantization technique to be used. The quantization selection unit 115 selects the quantization technique for a given matrix based on the level of correlation of that matrix. The quantization selection unit 115 selects either a high correlation quantization unit 120 or a low correlation quantization unit 125. Following the quantization process, the resulting quantized coefficient matrices are provided to an encoder unit 130. The encoded unit 130 is implemented to dynamically select between various encoding techniques for at least some of the quantized coefficient matrices. The encoded unit 130 includes a hierarchical encoder selection unit 135 which receives the quantized matrix coefficients. The hierarchical encoder selection unit 135 recursively divides the quantized coefficient matrices until sub-matrices are reached that can be efficiently encoded by the included encoder units. The encoder unit 130 further includes a sparse matrix variable length encoder unit 140 and a dense matrix variable length encoder unit 145, as well as the ability to encode matrices as zero matrices. The encoded video data is then supplied to a multiplexer 150 to form an output bit stream of compressed video data for transmission and/or storage.

To be an “anticipation” rejection under 35 U.S.C. § 102, the reference must teach every element and limitation of the Applicant’s claims. Applicant submits that Kolesnik fails to teach a classification means or classification step for classifying “the quantized data into data having a value representing the quantized data and at least one set of classified data representing a data value other than the representative value while obtaining classification information data regarding the classification.” As shown in Figure 1, Kolesnik teaches a quantization unit 110 and an encoder unit 130. In a conclusory manner, the Examiner asserts that the quantization unit 110 both quantizes the video data and classifies the quantized data. The Examiner attempts to support this conclusion by stating that the “quantized coefficient matrices” are the values representing the data. However, independent claims 1, 10 and 16 recite classifying the quantized data into 1) data having the representative value, 2) classified data and 3) classification information data. At best, Kolesnik, through quantization unit 110, teaches quantizing input data into 1) quantized coefficient matrix and 2) quantized reference coefficients, neither of which is recited in claims 1, 10 and 16.

The Examiner attempts to cure this deficiency by stating that the classified data and the classification information data are classified by the hierarchical encoder selection unit 135. However, this does not appear to be accurate. The hierarchical encoder selection unit 135 determines, for each quantized coefficient matrix, whether the matrix is dense, sparse, zero, or inbetween. Zero matrices go directly to the multiplexer, dense matrices go to the dense matrix variable length encoder unit 145, sparse matrices go to the sparse matrix variable length encoder unit 140 and inbetween matrices are repeatedly subdivided into submatrices until each of the

resulting submatrices are either zero, sparse or dense. Said differently, the matrices are ordered based on their number of significant coefficients in relation to the size of the matrix. The matrices are not classified into 1) data having the representative value, 2) classified data and 3) classification information data. Therefore, Kolesnik does not teach the classifying means (or classifying step) as recited in claims 1, 10 and 16.

Additionally, claims 4, 13 and 19 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kolesnik and Nafarich (U.S. Patent No. 6,252,994). To establish a prima facie case of obviousness the Examiner must show that the prior art references, when combined, teach or suggest all of the claim limitations. Since claims 4, 13 and 19 depend from claims 1, 10 and 16 respectively, and since the Kolesnik reference does not disclose all of the limitations of claims 1, 10 and 16, Applicant submits that claims 4, 13 and 19 are patentable at least by virtue of their dependency from claims 1, 10 and 16.

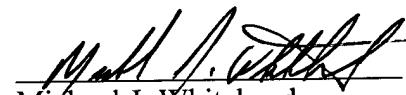
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111
Appln. No.: 09/356,505

Attorney Docket No.: Q55129

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,


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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE DRAWINGS:

Attached hereto is a Submission of Formal Drawings.

IN THE CLAIMS:

The claims are amended as follows:

5. (Amended) A data compression method as claimed in any one of claim Claims 1 to 4,

wherein the data having the representative value are 0 data representing the value 0 of the quantized data , and the classified data are non-zero data representing a non-zero value of the quantized data.

6. (Amended) A data compression method as claimed in any one of claim Claims 1 to 5,

wherein the first coding method is any one of Huffman coding, run length coding, B1 coding, B2 coding, Wyle coding, Golomb coding, Golomb-Rice coding, and binary arithmetic coding.

7. (Amended) A data compression method as claimed in any one of claim Claims 1 to 6,

wherein the second coding method is any one of Huffman coding, universal coding, and multi-valued arithmetic coding.

8. (Amended) A data compression method as claimed in any one of claim Claims 1 to 7,

wherein the coded data are obtained by coding the classified data according to a third coding method, out of the classification information data and/or the data having the representative value

and the classified data, in the case where the amount of the coded data is larger than a predetermined information amount determined based on the original data.

9. (Amended) A data compression method as claimed in ~~any one of claim~~ ~~Claims 1 to 8~~, wherein the third coding method is any one of Huffman coding, arithmetic coding, and PCM coding.

14. (Amended) A data compression apparatus as claimed in ~~any one of claim~~ ~~Claims 10 to 13~~, wherein the classification means classifies the quantized data by letting the data having the representative value be 0 data representing the value of 0 of the quantized data and letting the classified data be non-zero data representing a non-zero value of the quantized data.

15. (Amended) A data compression apparatus as claimed in ~~any one of claim~~ ~~Claims 10 to 14~~, further comprising:

judging means for judging whether or not the amount of the coded data is larger than a predetermined information amount determined based on the original data; and

third coding means for obtaining the coded data by coding at least the classified data according to a third compression method, out of the classification information data and/or the data having the representative value and the classified data, in the case where the judging means has judged the amount of the coded data to be larger than the predetermined information amount.

20. (Amended) A computer-readable recording medium as claimed in ~~any one of claim~~ ~~Claims 16 to 19~~, wherein the procedure of classification is a procedure of classifying the quantized data by letting the data having the representative value be 0 data representing the value

0 of the quantized data, and by letting the classified data be non-zero data representing a non-zero value of the quantized data.

21. (Amended) A computer-readable recording medium as claimed in ~~any one of~~ claim ~~Claims 16 to 20~~, the program further including the procedures of:

judgment as to whether or not the amount of the coded data is larger than a predetermined information amount determined based on the original data; and

acquisition of the coded data by coding at least the classified data according to a third compression method out of the classification information data and/or the data having the representative value and the classified data, in the case where the amount of the coded data has been judged to be larger than the predetermined information amount.